

Recommendation

ITU-T E.212 (06/2024)

SERIES E: Overall network operation, telephone service, service operation and human factors

International operation – Maritime mobile service and public land mobile service

The international identification plan for public networks and subscriptions

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Recommendation ITU-T E.212

The international identification plan for public networks and subscriptions

Summary

Recommendation ITU-T E.212 defines a unique international identification plan for public fixed and mobile networks providing users with access to public telecommunication services. The ITU-T E.212 identification plan was originally developed for use in public land mobile networks (PLMNs). The plan is hierarchical and identifies geographical areas, networks and subscriptions. The main body of this Recommendation describes the pure identification plan.

The 2024 revision of this Recommendation clarifies the conditions for reclamation in the case of non-payment of membership fees for mobile network codes (MNCs) under shared ITU-T E.212 mobile country codes (MCC).

History *

Edition	Recommendation	Approval	Study Group	Unique ID
1.0	ITU-T E.212	1984-10-19		11.1002/1000/3197
2.0	ITU-T E.212	1988-11-25		11.1002/1000/440
3.0	ITU-T E.212	1998-11-13	2	11.1002/1000/4528
3.1	ITU-T E.212 (1998) Amd. 1	2003-05-02	2	11.1002/1000/6245
4.0	ITU-T E.212	2004-05-28	2	11.1002/1000/7186
4.1	ITU-T E.212 (2004) Amd. 1	2007-02-08	2	11.1002/1000/8849
5.0	ITU-T E.212	2008-05-15	2	11.1002/1000/9300
5.1	ITU-T E.212 (2008) Amd. 1	2008-09-23	2	11.1002/1000/9523
5.3	ITU-T E.212 (2008) Amd. 2	2010-11-18	2	11.1002/1000/9114
5.4	ITU-T E.212 (2008) Amd. 3	2011-06-10	2	11.1002/1000/11032
6.0	ITU-T E.212	2016-09-23	2	11.1002/1000/12831
6.1	ITU-T E.212 (2016) Amd. 1	2018-07-13	2	11.1002/1000/13868
6.2	ITU-T E.212 (2016) Amd. 2	2020-06-05	2	11.1002/1000/14179
6.3	ITU-T E.212 (2016) Amd. 3	2020-12-18	2	11.1002/1000/14315
7.0	ITU-T E.212	2024-06-28	2	11.1002/1000/15788

Keywords

E.212, MNC, MCC.

* To access the Recommendation, type the URL <https://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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Recommendation ITU-T E.212

The international identification plan for public networks and subscriptions

1 Scope

This Recommendation describes a unique and unambiguous identification plan for subscriptions and the format of the international mobile subscription identity (IMSI). It establishes procedures for the assignment of fields of the IMSI in a manner that prevents duplication.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T E.101] Recommendation ITU-T E.101 (2009), *Definitions of terms used for identifiers (names, numbers, addresses and other identifiers) for public telecommunication services and networks in the E-series Recommendations*.
- [ITU-T E.164] Recommendation ITU-T E.164 (2010), *The international public telecommunication numbering plan*.
- [ITU-T E.164.1] Recommendation ITU-T E.164.1 (2008), *Criteria and procedures for the reservation, assignment and reclamation of E.164 country codes and associated identification codes (ICs)*.
- [ITU-T E.190] Recommendation ITU-T E.190 (1997), *Principles and responsibilities for the management, assignment and reclamation of E-series international numbering resources*.

3 Definitions

Whenever the term "country", "destination country" or "originating country" is used in this Recommendation, it identifies a specific country, a group of countries in an integrated numbering plan or a specific geographical area.

The terms "operator" and "national numbering plan administrator" are defined in [ITU-T E.101]. This Recommendation defines the following terms:

3.1 home network: The network responsible for the subscription identified by the elements within the IMSI.

3.2 international mobile subscription identity (IMSI): The IMSI is a string of decimal digits, up to a maximum length of 15 digits, which identifies a unique subscription. The IMSI consists of three fields: the mobile country code (MCC), the mobile network code (MNC), and the mobile subscription identification number (MSIN).

3.3 mobile country code (MCC): The MCC is the first field of the IMSI, is three digits in length and identifies a country. The Director of TSB may assign more than one MCC to a country. MCCs in the 90x range are non-geographic MCCs (country-agnostic) and are administered by the Director of TSB.

3.4 mobile network code (MNC): The MNC is the second field of the IMSI, is two or three digits in length and is administered by the respective national NPA. MNCs under MCC ranges 90x are administered by the Director of TSB. The MNC, in combination with the MCC, provides sufficient information to identify the home network.

3.5 mobile subscription identification number (MSIN): The MSIN is the third field of the IMSI, is up to 10 digits in length and is administered by the relevant MNC assignee to identify individual subscriptions.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

FN	Future Network
GSM-R	Global System for Mobile communications – Railway
IMSI	International Mobile Subscription Identity
MCC	Mobile Country Code
MNC	Mobile Network Code
MSIN	Mobile Subscription Identification Number
NGN	Next Generation Network
NPA	Numbering Plan Administrator
PLMN	Public Land Mobile Network
PSTN	Public Switched Telephone Network
ROIO	Regional and Other International Organizations
SDO	Standards Development Organization
SIM	Subscriber Identity Module
TIES	Telecommunication Information Exchange Service
TSB	Telecommunication Standardization Bureau
UICC	Universal Integrated Circuit Card
USIM	Universal Subscriber Identity Module

5 Considerations

The considerations that form the basis for this international identification plan for networks and subscriptions are as follows:

- a) The assignment of E.212 resources is in conformance with the principles in [ITU-T E.190].
- b) There may be more than one public network offering such services in a country.
- c) The MNC consists of 2 or 3 digits and the length of the MNC is a national matter.
- d) The number of digits of the MSINs is determined by the relevant MNC assignee in accordance with the national policy.
- e) The IMSI shall not exceed 15 digits in length.
- f) For 90x MCCs, the length of MNCs is determined by the Director of the Telecommunication Standardization Bureau (TSB) and the length of the MSINs is determined by the relevant MNC assignee in accordance with the relevant ITU-T Recommendations.

- g) The IMSI assigned to a subscription under this identification plan should not be directly related to numbers assigned to that same subscription under "The international public telecommunications numbering plan" [ITU-T E.164].
- h) The IMSI should, if necessary, enable:
 - 1) determination of the home network;
 - 2) identification of subscriptions, when information about a specific subscription is exchanged between networks;
 - 3) identification of subscriptions for charging and billing purposes;
 - 4) identification and management of subscription, e.g., for registering, authenticating, signalling, retrieving, providing, changing and updating of subscription data.
- i) The IMSI is not intended to be used for dialling purposes. This list is not exhaustive.

6 IMSI structure, format and assignment procedures

6.1 Structure and format of the IMSI

The IMSI structure and format are as shown in Figure 1.

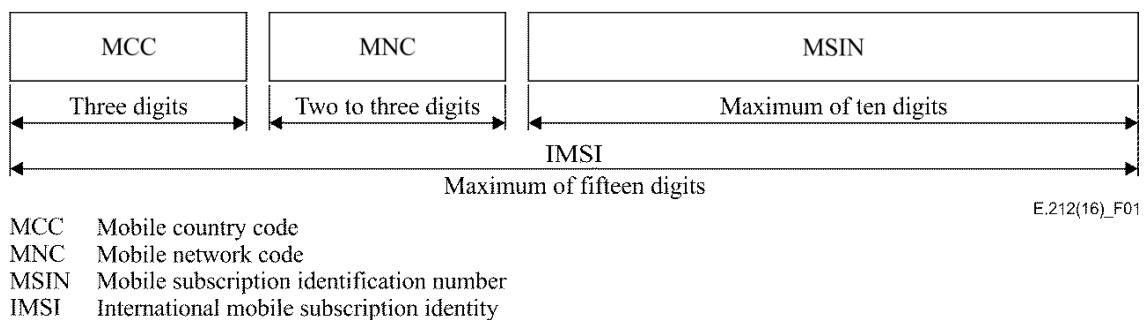


Figure 1 – Structure and format of the IMSI

6.2 IMSI assignment procedures

6.2.1 The Director of TSB assigns MCCs in accordance with Annexes A, C and H.

6.2.2 MNCs associated with geographical MCCs are administered by the national NPA within each country in accordance with the principle in Annex B.

6.2.3 MSINs are administered by the relevant MNC assignee in accordance with relevant national legal and regulatory environments or ITU-T Recommendations.

6.2.4 In principle, only one IMSI should be assigned to each subscription, although multiple subscriptions may be associated with a SIM/USIM/UICC/embedded SIM card.

Annex A

Criteria and procedures for the assignment and reclamation of shared ITU-T E.212 mobile country codes (MCC) for networks and their respective mobile network codes (MNCs)

(This annex forms an integral part of this Recommendation.)

A.1 Introduction

The Director of TSB assigns and reclaims E.212 mobile country codes (MCCs) for countries and shared MCCs for networks according to this Recommendation. The Director of TSB is also responsible for the assignment and reclamation of mobile network codes (MNCs) for shared MCCs for networks. Mobile subscription identification numbers (MSINs) are administered by the MNC assignee.

A.2 Scope

This annex describes the procedures and criteria to be utilized by the Director of TSB for the assignment and reclamation of mobile network codes (MNCs) associated with shared MCCs for networks.

A.3 Principles for assignment

A.3.1 In accordance with this Recommendation, the shared MCC resources assigned to networks shall consist of a 3-digit shared MCC for networks followed by a 2- or 3-digit MNC.

A.3.2 For a specific shared MCC for networks, the length of all MNCs within that MCC shall be the same.

A.3.3 Both the shared MCC(s) for networks, and the specific MNC(s) associated with a shared MCC for networks, will be assigned by the Director of TSB.

A.3.4 Subsequent shared MCCs for networks and/or MNCs that are part of shared MCCs for networks can be assigned by the Director of TSB in the event of exhaustion or another substantiated reason.

A.4 Criteria for assignment

Throughout the following clauses, when using the term "applicant", it is assumed that the applicant is either an operator or is a group of operators. However, it should be noted that many national NPAs require that applicants correspond with ITU-TSB only via that national NPA. It should also be recognized that it may be a national NPA presenting an application on behalf of an applicant rather than the applicant making a direct approach to the Director of TSB.

A.4.1 The applicant must be a Member State or a Sector Member of the ITU or an Associate Member of the relevant ITU-T Study Group and must maintain its membership as long as it has reserved or is assigned the requested resource. If annual membership fees are not paid by the initial payment due date¹ the resources will be reclaimed.

A.4.2 The Director of TSB receives a written request from an applicant for assignment.

A.4.3 The applicant requesting the numbering resource must affirm that it has overall responsibility, or contract with the entity that has overall responsibility, for the management, operation and maintenance of the network that will utilize the requested resource.

¹ At the time of publication, the initial due date for payment of ITU membership fees is 31 March each year.

A.4.4 It is a national matter whether requests for codes require national NPA review or approval. The applicant shall certify that it has met all of its country's national, legal and/or regulatory requirements for submission of the application.

A.4.5 The applicant must also affirm that all national, regulatory, and legal requirements of the countries in which the applicant's network will operate and provide service are met at the time of network implementation.

A.4.6 If an applicant has been granted a shared E.164 country code resource per [ITU-T E.164.1] for the network cited in the application, it can be assumed that it has fulfilled the following criteria for assignment (see clauses A.4.1, A.4.3 and A.4.7). The applicant must certify that it continues to meet these criteria. However, if the application is for a network that is not associated with a shared E.164 country code resource, all of the criteria must be addressed.

A.4.7 The applicant must demonstrate that the international network infrastructure it intends to use will contain connecting physical nodes in two or more countries. In the case of satellite terminals, serving mobile terminals in two or more countries will satisfy this requirement.

A.4.8 The applicant is required to state the planned date of commercial implementation in at least two countries, or in geographical areas in two different countries.

A.4.9 The applicant will affirm that the requested resources will be used for offering public telecommunication services between two or more countries within a maximum of 1 year from the date of assignment.

A.4.10 The applicant must demonstrate that the use of a MNC under a shared MCC for networks is an appropriate, efficient and effective method to identify terminals or users of the network for routing, addressing and billing purposes. The applicant must attach substantiating documentation justifying this fact. The applicant will affirm that it complies with interworking requirements among public networks.

A.4.11 The applicant must demonstrate that other reasonable technical and operational alternatives (e.g., use of national resources) are not appropriate. The applicant must attach substantiating documentation justifying this fact.

A.4.12 The applicant may apply for a subsequent MNC under the following circumstances:

- The current assignment is approaching exhaustion.
- The applicant can demonstrate that the resource will be utilized by a distinct shared network. Such a request will be treated as a new application.
- Other substantiated reasons with proper justification.

A.4.13 Additional assignments of MNCs will be based on confirmation that the existing resource is being used in an efficient manner (e.g., that the format and length of the numbering plan is appropriate). The applicant must provide substantiated information that the resource is approaching exhaustion. The terms and conditions of the original assignment must be met.

A.4.14 The applicant will annually certify that the resource which has been assigned to it continues to be in operation and will also reaffirm its prime contact details through the submission of a status notification to the Director of TSB.

A.5 Assignment

A.5.1 Requests for the assignment of a shared MCC+MNC to a network will be addressed in writing to the Director of TSB. The written request should be submitted on official company letterhead and signed by an appropriate company representative. The signature of the appropriate company representative affirms that, in the applicant's view, all the criteria are met. This written request shall include: